FORMAL COMMENT

in the matter of

Proposed Rules Permitting Antenna Modeling to Verify AM Directional Antenna Performance

MM Docket No. 93-177

July 20, 2007

Submitted by:

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Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, DC

In the matter of	)	
	)	MM Docket No. 93-177
Proposed rules permitting antenna modeling to verify AM directional antenna performance	)	

To: The Commission

FORMAL COMMENT

Independent Broadcast Consultants, Inc. ("IBC"), located at 110 County Road 146, Trumansburg, NY 14886, respectfully submits the following formal comment in the Commission's inquiry into the policies and rules pertaining to the performance verification of AM directional antenna systems. Said Notice of Inquiry, adopted May 23, 2007, seeks public comment on pertinent Commission policies and rules in light of permitting antenna modeling to verify AM directional antenna performance.

As stated in the Notice, "an ad hoc technical group of radio broadcasters, equipment manufacturers and broadcast consulting engineers, acting collectively as the AM Directional Antenna Performance Verification Coalition ("Coalition"), convened to assess previous comments and to refresh the record in the Commission's directional antenna proceeding. ... The Coalition requests rule changes to permit applicants to use moment method computer modeling to demonstrate that AM directional antennas perform as authorized." The Commission's Media Bureau seeks comment on the Coalition's conclusions and recommendations.

Field measurements, properly take and presented are not fundamentally flawed. To cast contempt on all proof of performance measured radials indicates an excuse to justify moment method modeling as a cure-all. Of paramount importance in antenna proofs of performance is the showing that the measured pattern is within the standard (or standard/augmented) pattern envelope and is also of the required RMS. If radial measurements are as unreliable in urban areas, as purported in the Coalition's proposal, due to nearby reradiating structures and power lines, trusting moment method to verify compliance of an array within CP constraints is in itself flawed.

Present Commission authorizations call for AM directional antenna proofs of performance to be carried out under similar environmental conditions. Seasonal long-term changes in ground conductivity are not an issue if this policy is adhered to.

While our firm has employed moment method modeling in designing directional arrays and phasing systems, the data is only a starting point for array tuning. It is a helpful tool whose predicted data seldom, if ever, matches parameters required to keep the pattern with the standard envelope. It is noted in the Coalition's proposal that moment method modeling is stated to "predict how the overall antenna system will perform." It does not, however, measure how the antenna system actually does perform.

While some commenters in this proceeding may argue that rigorous antenna proofs as currently mandated are no longer necessary, and can be supplanted by computer-generated parameters, IBC strongly disagrees. While the present Commission rules governing antenna proofs of performance offer broadcasters and their engineers increased flexibility, IBC maintains the required procedures outlined in § 73.151, 73.153, 73. 154 and 73.186 remain as valid and necessary today as when first adopted. Indeed, with the Commission's increased emphasis upon interference containment and reduction, the requirements for thorough measured radial based antenna performance verification are more important than ever. We urge retention of current performance standards and procedures as a basic core requirement for the licensing of any new or modified AM directional antenna system.

Should a broadcaster elect to employ a moment method antenna proof of performance, the following suggestions are presented.

1. A complete non-directional set of radial measurements, with all remaining towers in the array properly anti-resonated, be taken at each azimuth called for in the CP and also at all minima and at major and minor lobes. The data is to be taken and presented so that an unambiguous determination of the non-directional inverse field can be determined by graph analysis.

2. If the non-directional inverse fields produce a pattern that is more than 1.5 dB from being circular, there likely is a disturbance that would invalidate moment method parameters and a standard antenna proof of performance is warranted. If the non-directional pattern is circular within 1.5 dB, this can be used as a reference from which all the maximum permissible inverse fields at pertinent directional azimuths can be ratioed. The moment method predictions should not exceed these maximum ratios. Further, the moment method results can be compared to the measured non-directional inverse fields to confirm compliance with CP limits and correct pattern RMS.

3. It is also suggested that subject AM facilities near the Canadian or Mexican borders verify directional pattern integrity by proven traditional radial measurements on radials oriented toward the pertinent border.

July 20, 2007

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